

09/913062

JC05 Rec'd PCT/PTO 09 AUG 2001

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Sadami OKADA

US National Stage of PCT/JP01/02411

Filed: August 9, 2001

Docket No.: 109117

For: ELECTRONIC CAMERA, IMAGE PROCESSING PROGRAM AND
RECORDING MEDIUM THEREFOR, AND IMAGE PROCESSING METHOD

PRELIMINARY AMENDMENT

Director of the U.S. Patent and Trademark Office
Washington, D. C. 20231

Sir:

Prior to initial examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Page 3, lines 10-19, delete current paragraph and insert therefor:

In this dark area gradation conversion unit, the gradation conversion is performed using a linear conversion characteristic with respect to an area in which the input gradation value of the image signal is darker than a predetermined value (hereafter, referred to as a "dark region"). This dark region originally has a small signal level, and hence there is little level-dependent noise, such as shot noise. Consequently, in the dark region, there is little disadvantage even if the level-dependent noise is not equalized. In contrast, by performing linear conversion on this dark region, non-linear jumping or collapsing does not occur in the output gradation value, and therefore, it is possible to maintain the gradation feel of shadows, hair and the like. In addition, the fixed pattern noise of the dark region is less likely to become noticeable.

Page 10, lines 7-8, delete current paragraph and insert therefor::

The CPU 19 outputs the raw data in which the gradation has been thus restored to a monitor display unit 22 and another signal processing system (S14 in Fig. 3).

IN THE DRAWINGS:

Please amend Figure 9 as set forth in the attached Request for Approval of Drawing Corrections.

REMARKS

Claims 1-10 are pending. By this Preliminary Amendment, the specification and Fig. 9 are amended. The attached Appendix includes marked-up copies of each rewritten paragraph (37 C.F.R. §1.121(b)(1)(iii)). Prompt and favorable examination on the merits is respectfully requested.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

J. Adam Neff
Registration No. 41,218

JAO:JAN/zmc

Attachment:
Appendix
Request for Approval of Drawing Correction

Date: August 9, 2001

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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APPENDIX

Changes to Specification:

Page 3, lines 10-19:

In this dark area gradation conversion unit, the gradation conversion is performed using a linear conversion characteristic with respect to an area in which the input gradation value of the image signal is darker than a predetermined value (hereafter, referred to as a "dark region"). This dark region originally has a small signal level, and hence there is little level-dependent noise, such as shot noise. Consequently, in the dark region, there is little disadvantage even if the level-dependent noise is not equalized. In contrast, by performing linear conversion on this dark region, non-linear jumping or collapsing does not occur in the output gradation value, and therefore, it is possible to maintain the gradation feel of shadows, hair and the like. In addition, the ~~solid~~ fixed pattern noise of the dark region is less likely to become noticeable.

Page 10, lines 7-8:

The CPU 19 ~~and~~ outputs the raw data in which the gradation has been thus restored ~~are output~~ to a monitor display unit 22 and another signal processing system (S14 in Fig. 3).

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REQUEST FOR APPROVAL OF DRAWING CORRECTIONS

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

The Examiner is requested to review and approve the proposed corrections to
Figure 2, marked in red on the attached copy of such drawing figure.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

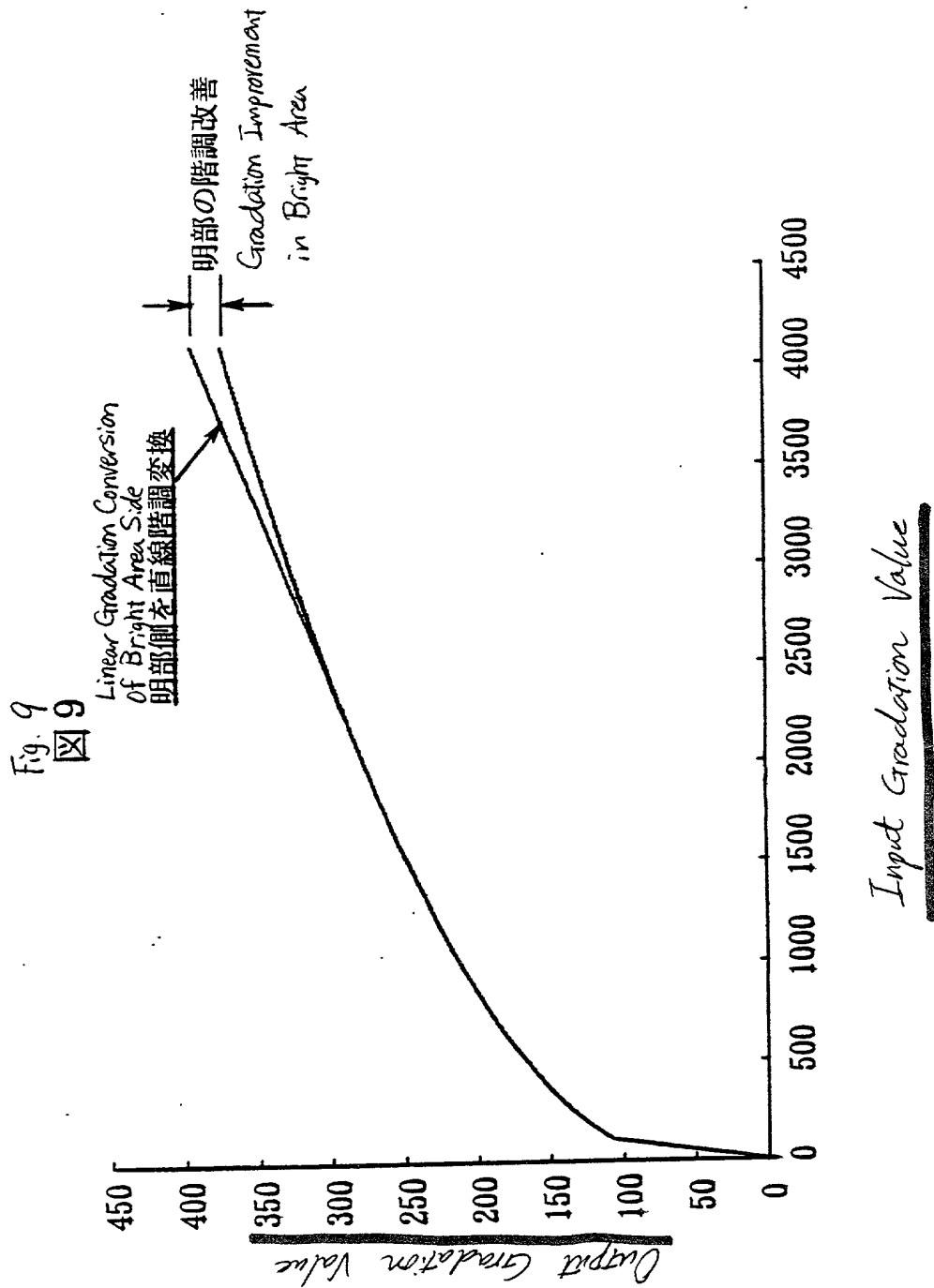
J. Adam Neff
Registration No. 41,218

JAO:JAN/zmc

Date: August 9, 2001

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09/913062 "080901"



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LETTER TO THE OFFICIAL DRAFTSPERSON

Director of the U.S. Patent and Trademark Office
Washington, D.C. 20231

Sir:

Please substitute the attached 8 sheets of formal drawings depicting Figures 1-9 for the corresponding drawings filed with the application. The attached drawings include drawing corrections requested in the Preliminary Amendment.

Respectfully submitted,



James A. Oliff
Registration No. 27,075

J. Adam Neff
Registration No. 41,218

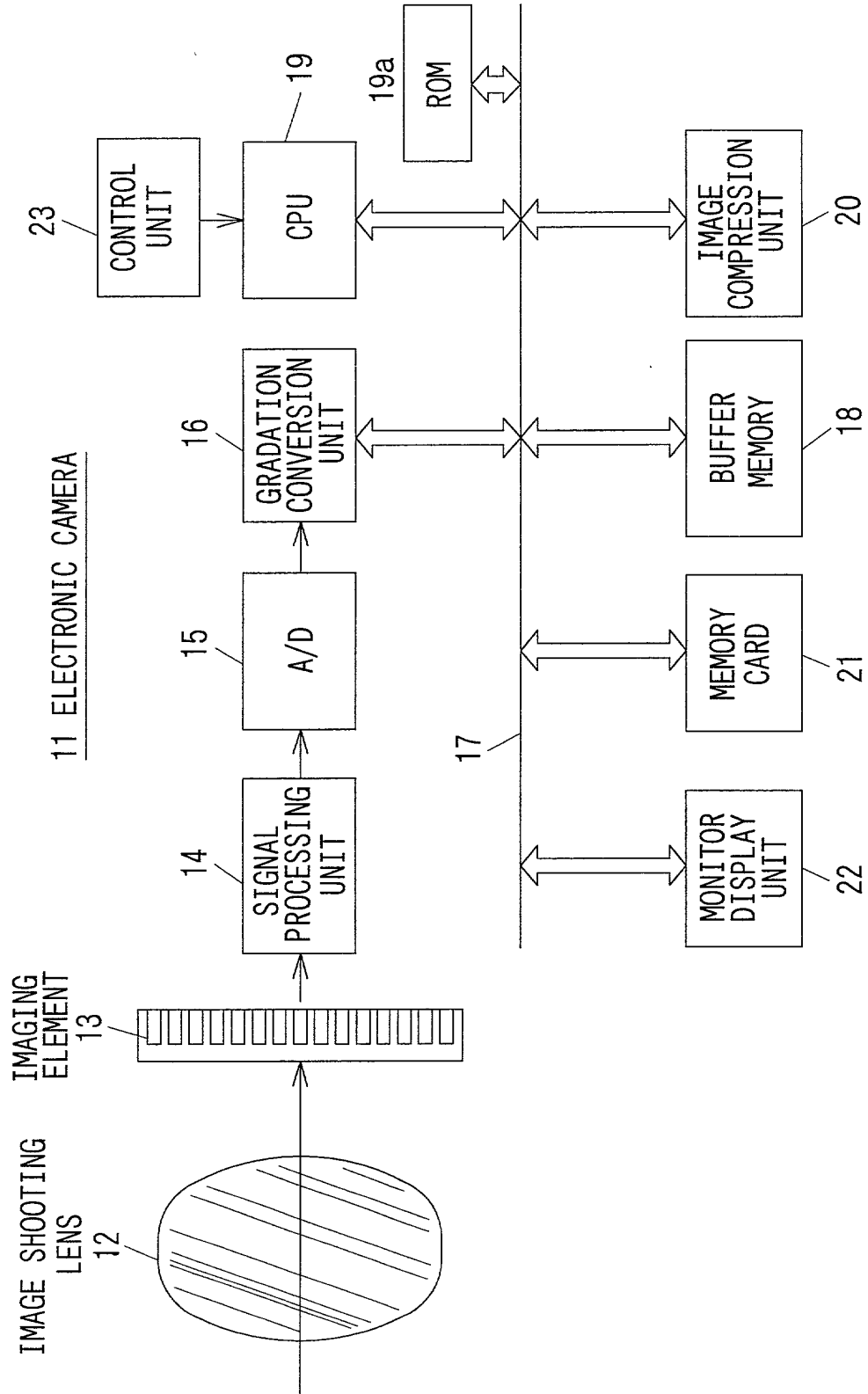
JAO:JAN/zmc

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FIG. 2

ACTIONS DURING IMAGE SHOOTING

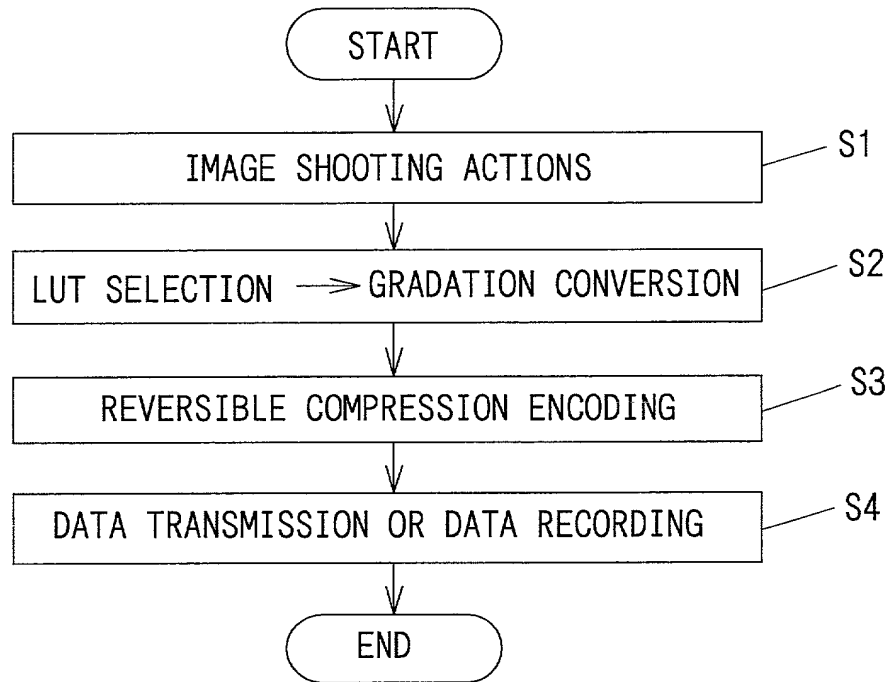


FIG. 3

ACTIONS DURING PLAYBACK

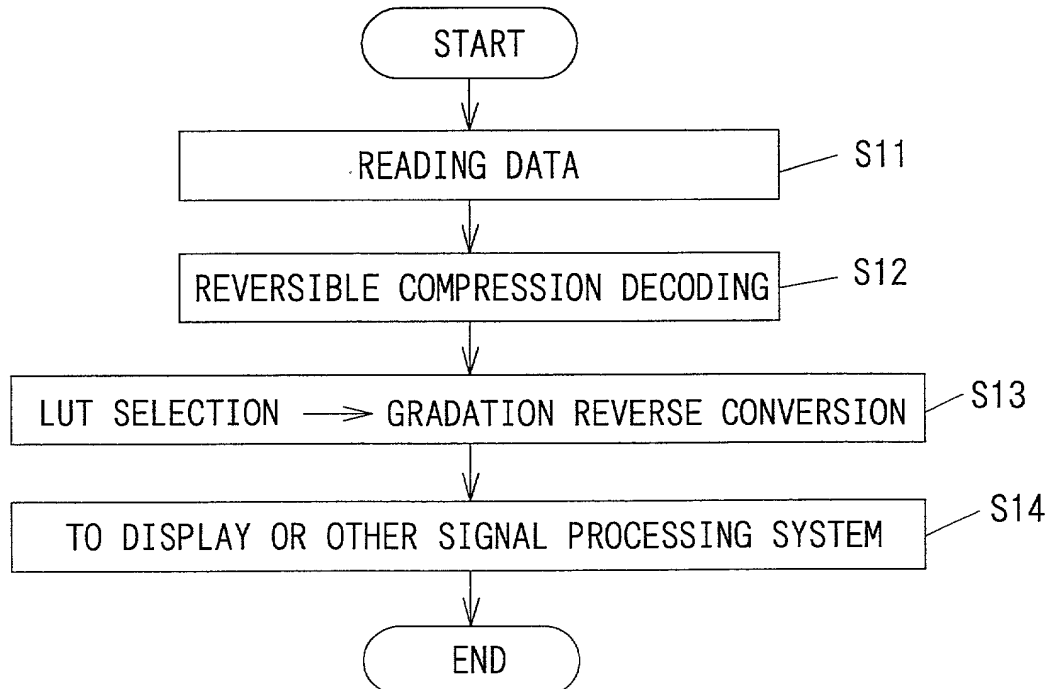
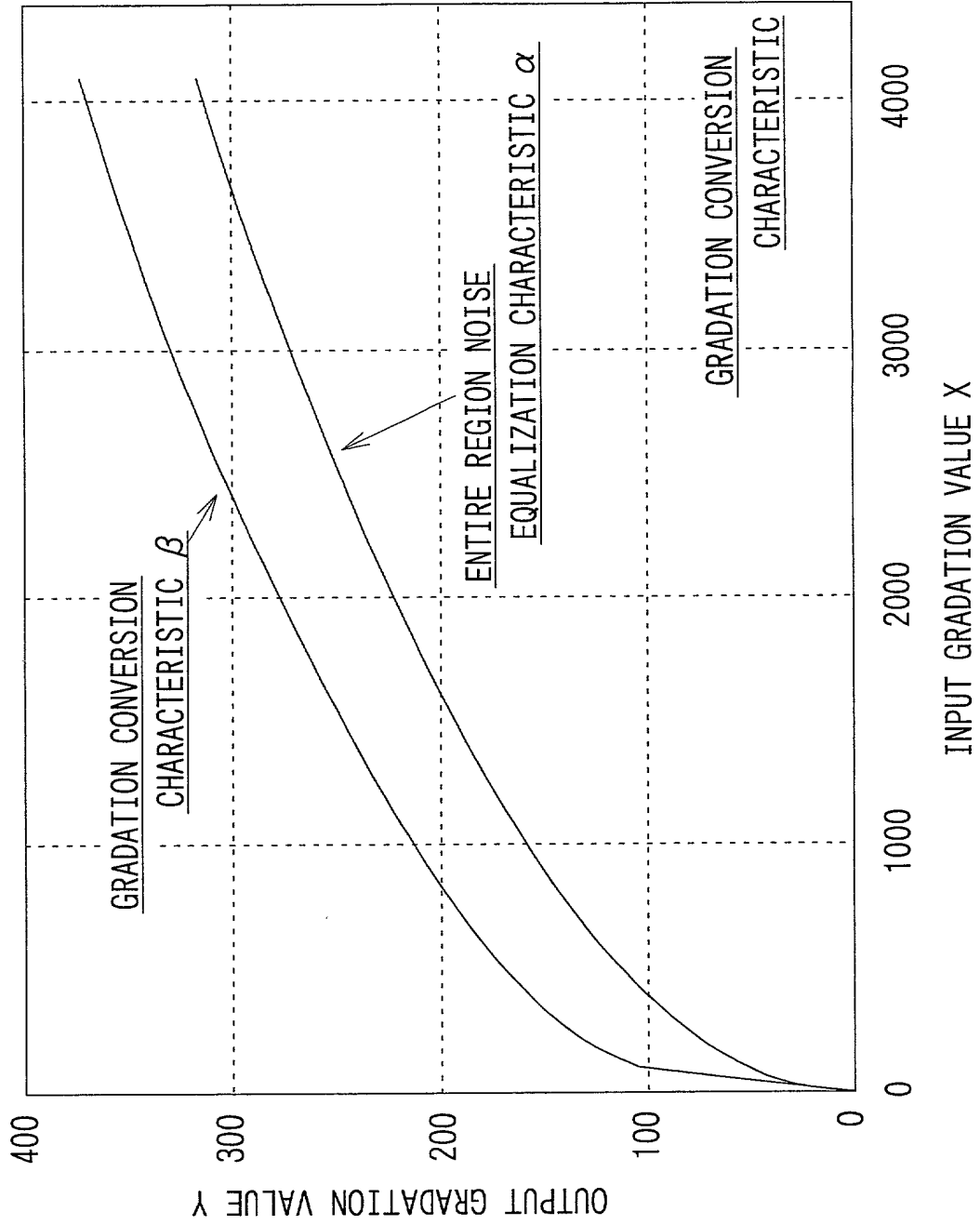


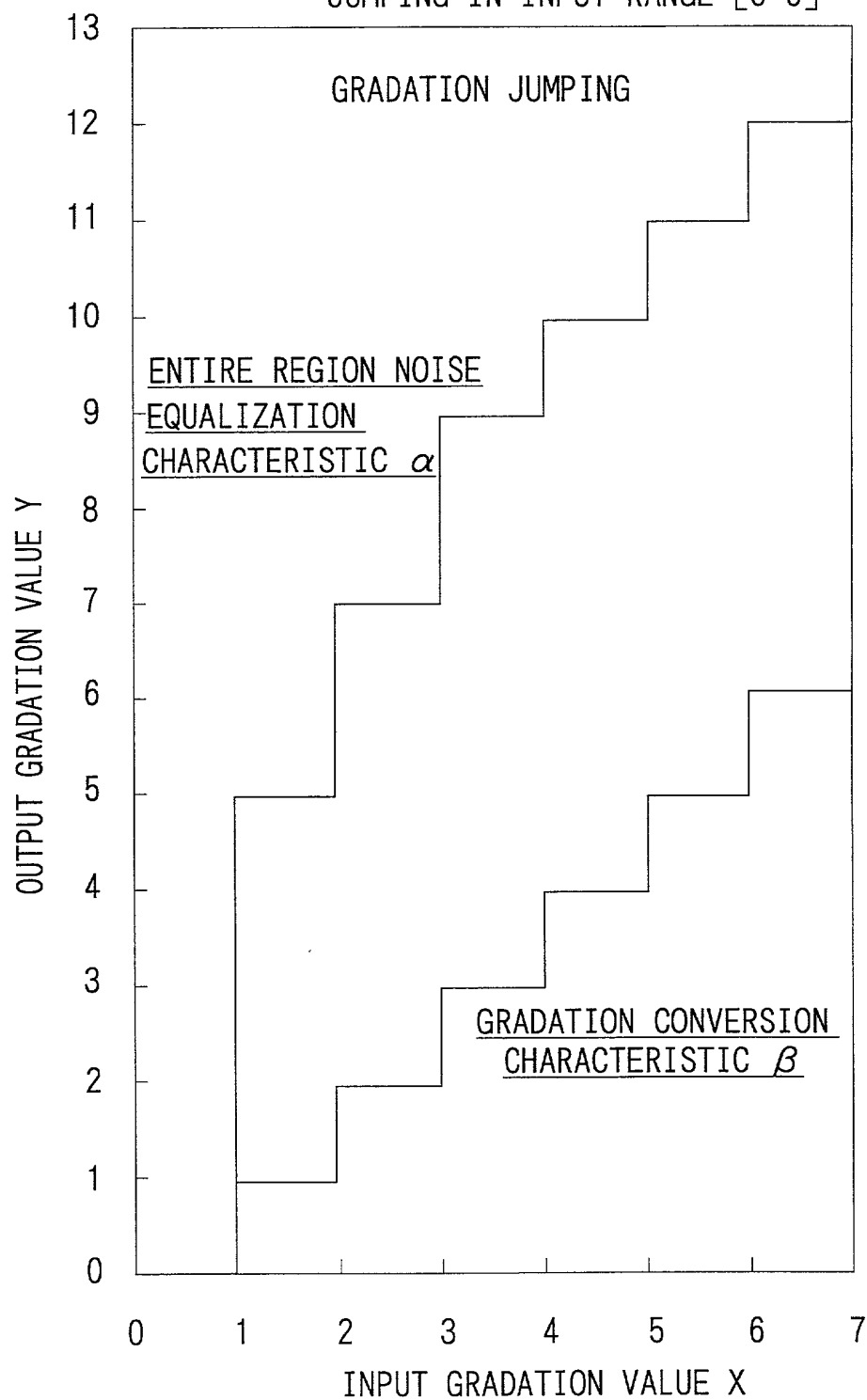
FIG. 4



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FIG. 5

EFFICACY OF REDUCING GRADATION
JUMPING IN INPUT RANGE [0-6]



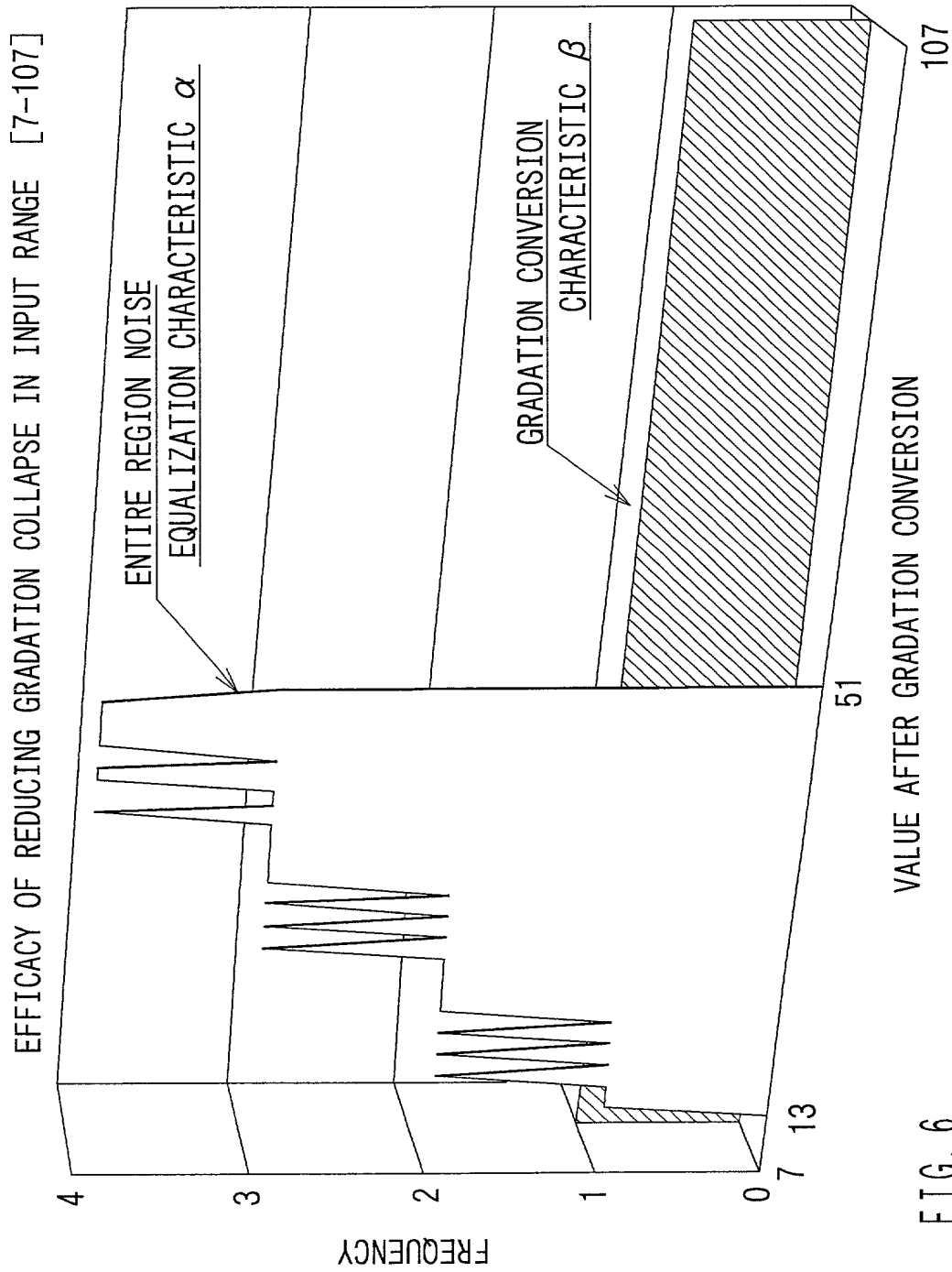


FIG. 6

FIG. 7

EFFICACY OF EQUALIZING NOISE AMPLITUDE IN INPUT RANGE [108-4095]

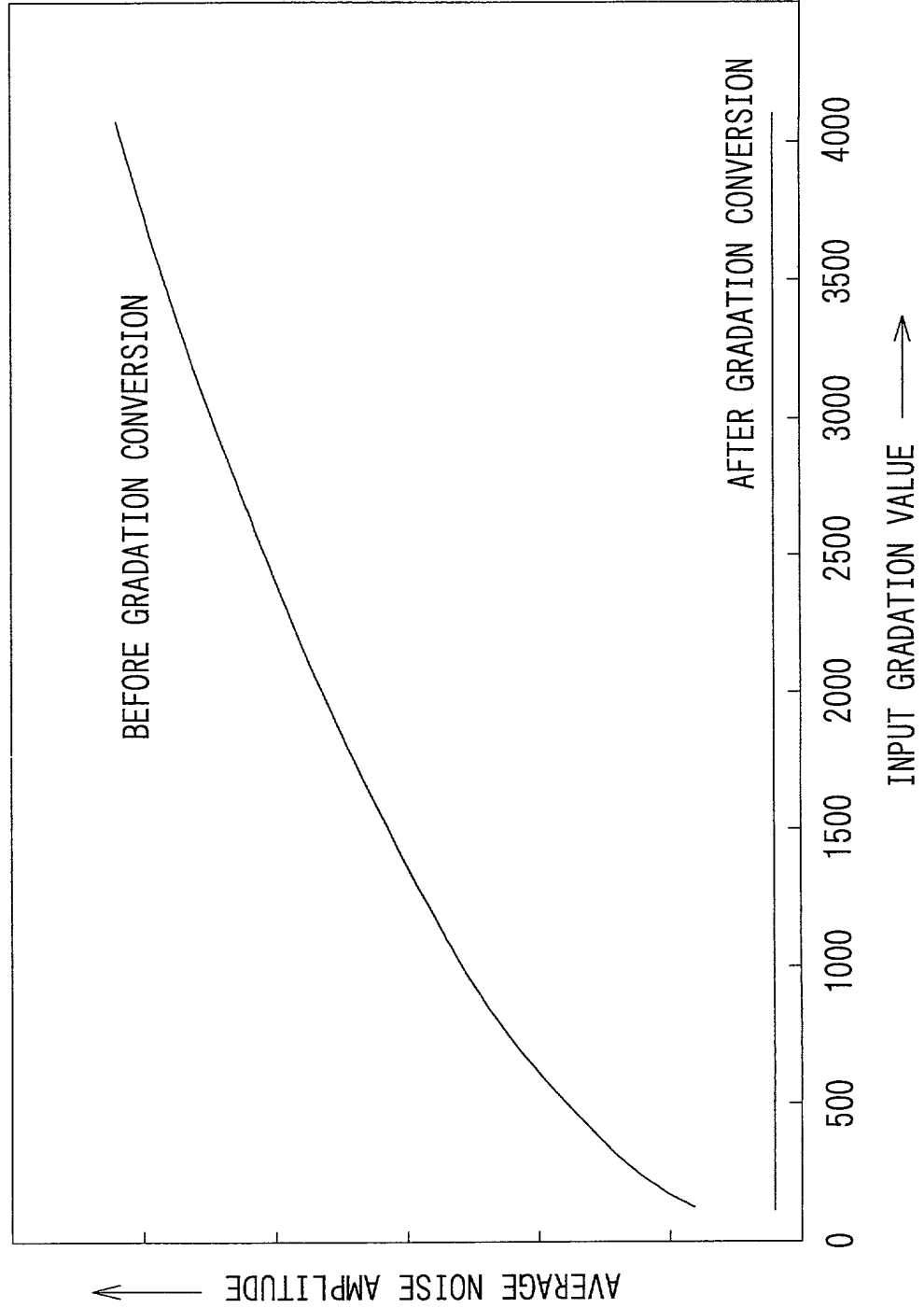


FIG. 8

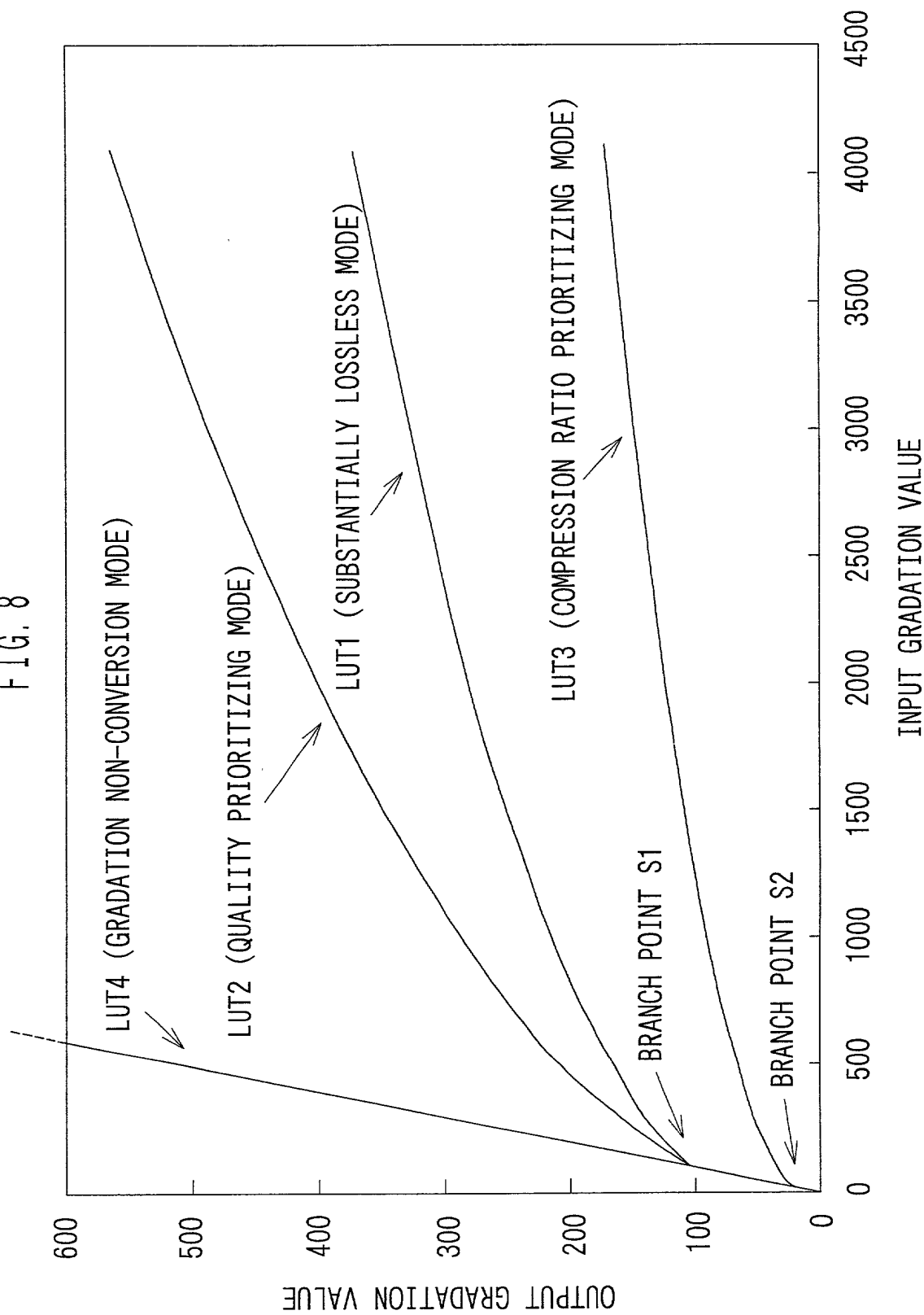


FIG. 9

